

ABSTRACT OF THE DISCLOSURE

A multilayer ingrowth matrix is constructed within well-defined porosity of a prosthetic material. The matrix consists of either proteinaceous or synthetic layers or gradients, or a combination of proteinaceous and synthetic layers or gradients. Each layer within the matrix is designed to achieve a specific function, such as facilitation of ingrowth of a particular cell type or release of a particular growth factor. The well-defined porosity is in the form of either helically oriented, interconnected transmural ingrowth channels, or a porous wall structure containing uniformly shaped pores (i.e. voids) in a very narrow size range, or a combination of channels and pores. This invention allows for uninterrupted ingrowth of connective tissue into walls of a synthetic graft prosthesis made from the prosthetic material. Furthermore, this invention can produce small diameter prostheses having an internal diameter of 6 mm or less.